FEATURE QUANTIFICATION FROM
MULTIDIMENSIONAL IMAGE DATA

ABSTRACT OF THE DISCLOSURE

Techniques, hardware, and software are provided for quantification of extensional features of structures of an imaged subject from image data representing a two-dimensional or three-dimensional image. In one embodiment, stenosis in a blood vessel may be quantified from volumetric image data of the blood vessel. A profile
5   from a selected family of profiles is fit to selected image data. An estimate of cross sectional area of the blood vessel is generated based on the fit profile. Area values may be generated along a longitudinal axis of the vessel, and a one-dimensional profile fit to the generated area values. An objective quantification of stenosis in the vessel may be obtained from the area profile. In some cases, volumetric image data
10   representing the imaged structure may be reformatted to facilitate the quantification, when the structural feature varies along a curvilinear axis. A mask is generated for the structural feature to be quantified based on the volumetric image data. A curve representing the curvilinear axis is determined from the mask by center-finding computations, such as moment calculations, and curve fitting. Image data are
15   generated for oblique cuts at corresponding selected orientations with respect to the curvilinear axis, based on the curve and the volumetric image data. The oblique cuts may be used for suitable further processing, such as image display or quantification.